

# **Arizona State Retirement System**

## **Total Fund Review and Investment Outlook**

### **For the Period Ended June 30, 2010**

October 15, 2010

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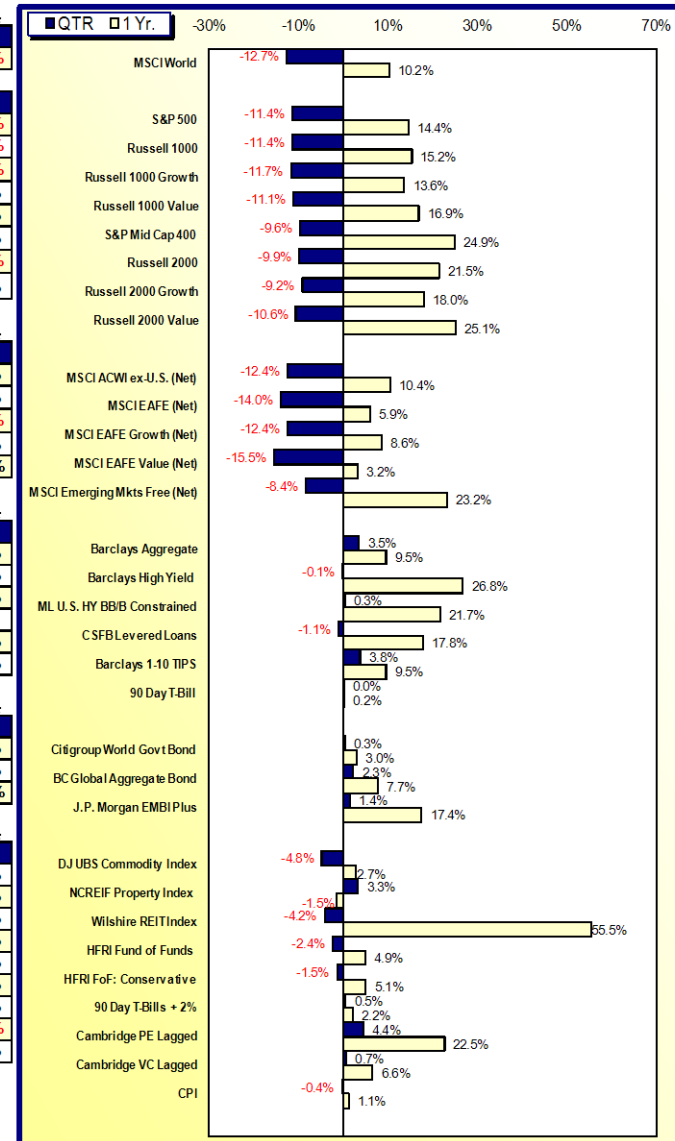
NEPC, LLC

# Market Environment

**Note: All of the data in this report is as of June 30, 2010, unless otherwise noted.**

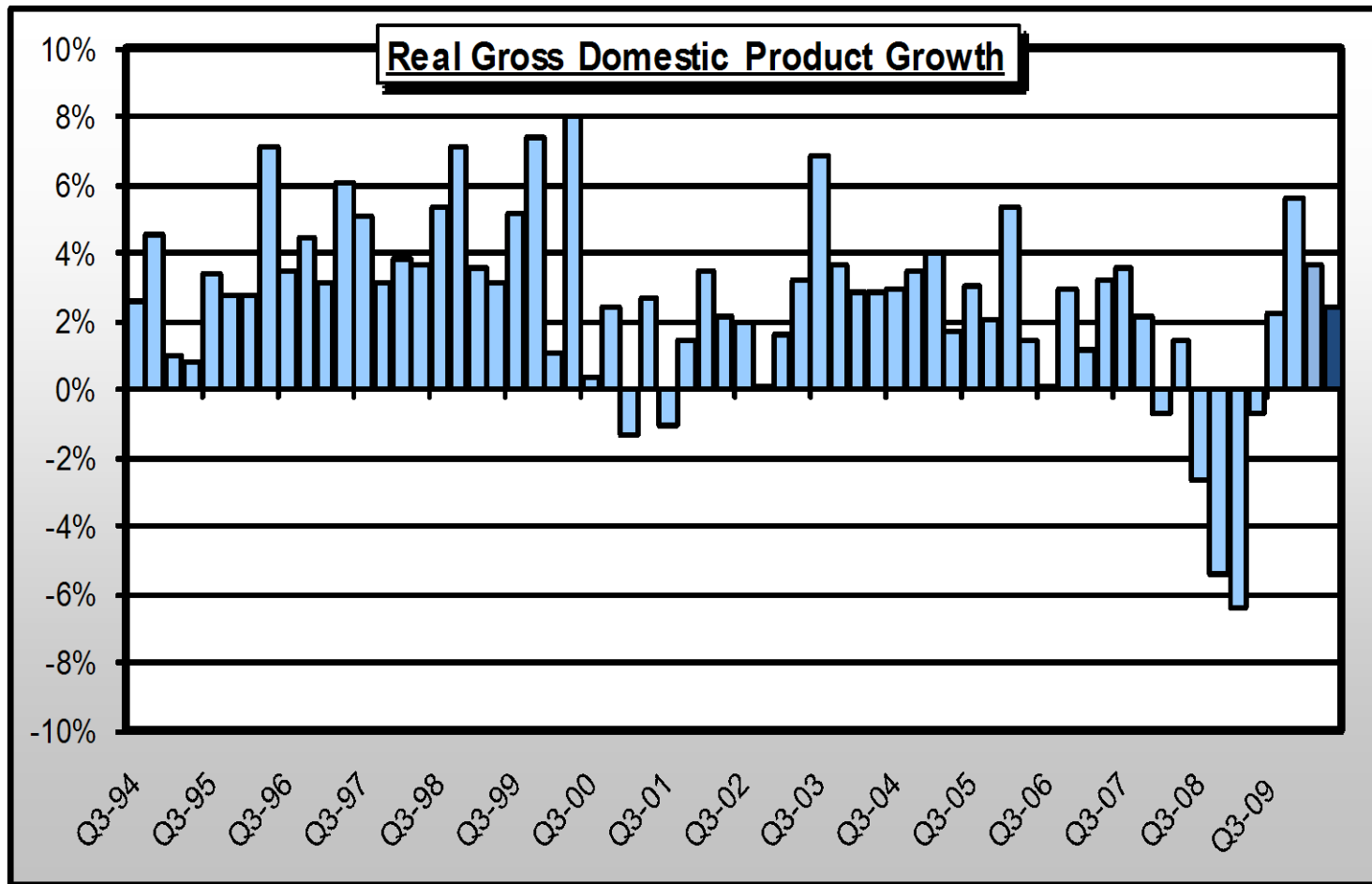
# Market Environment – Overview

		QTR	YTD	1Yr.	3Yr.	5Yr.	10Yr.
<b>Domestic Equity Benchmarks</b>							
MSCI World	World	-12.7%	-9.8%	10.2%	-11.5%	0.1%	-1.0%
<b>Domestic Equity Benchmarks</b>							
S&P 500	Large Core	-11.4%	-6.7%	14.4%	-9.8%	-0.8%	-1.6%
Russell 1000	Large Core	-11.4%	-6.4%	15.2%	-9.5%	-0.6%	-1.2%
Russell 1000 Growth	Large Growth	-11.7%	-7.6%	13.6%	-6.9%	0.4%	-5.1%
Russell 1000 Value	Large Value	-11.1%	-5.1%	16.9%	-12.3%	-1.6%	2.4%
S&P Mid Cap 400	Mid Core	-9.6%	-1.4%	24.9%	-5.9%	2.2%	5.3%
Russell 2000	Small Core	-9.9%	-2.0%	21.5%	-8.6%	0.4%	3.0%
Russell 2000 Growth	Small Growth	-9.2%	-2.3%	18.0%	-7.5%	1.1%	-1.7%
Russell 2000 Value	Small Value	-10.6%	-1.6%	25.1%	-9.9%	-0.5%	7.5%
<b>International Equity Benchmarks</b>							
MSCI ACWI ex-U.S. (Net)	International	-12.4%	-11.1%	10.4%	-10.7%	3.4%	1.9%
MSCI EAFE (Net)	Int'l Developed	-14.0%	-13.2%	5.9%	-13.4%	0.9%	0.2%
MSCI EAFE Growth (Net)	Int'l Developed	-12.4%	-10.7%	8.6%	-11.7%	1.7%	-1.6%
MSCI EAFE Value (Net)	Int'l Developed	-15.5%	-15.7%	3.2%	-15.1%	0.0%	1.8%
MSCI Emerging Mkts Free (Net)	Int'l Emerging	-8.4%	-6.2%	23.2%	-2.5%	12.7%	10.0%
<b>Domestic Fixed Income Benchmarks</b>							
Barclays Aggregate	Core Bonds	3.5%	5.3%	9.5%	7.5%	5.5%	6.5%
Barclays High Yield	High Yield	-0.1%	4.5%	26.8%	6.5%	7.2%	7.3%
ML U.S. HY BB/B Constrained	High Yield	0.3%	4.5%	21.7%	5.6%	6.1%	6.7%
CSFB Levered Loans	Bank Loans	-1.1%	3.3%	17.8%	1.6%	3.8%	n/a
Barclays 1-10 TIPS	Inflation-Linked	3.8%	4.4%	9.5%	7.6%	5.0%	7.5%
90 Day T-Bill	Cash	0.0%	0.1%	0.2%	1.6%	2.8%	2.7%
<b>Global Fixed Income Benchmarks</b>							
Citigroup World Govt Bond	Global Bonds	0.3%	-1.0%	3.0%	7.8%	5.1%	6.5%
BC Global Aggregate Bond	Global Bonds	2.3%	4.0%	7.7%	6.6%	4.9%	5.8%
J.P. Morgan EMBI Plus	Em. Mkt. Bonds	1.4%	5.1%	17.4%	8.2%	8.3%	10.6%
<b>Alternative Benchmarks</b>							
DJ UBS Commodity Index	Commodities	-4.8%	-9.6%	2.7%	-8.4%	-1.3%	4.4%
NCREIF Property Index	Real Estate	3.3%	4.1%	-1.5%	-4.7%	3.8%	7.2%
Wilshire REIT Index	REIT	-4.2%	5.2%	55.5%	-10.3%	-0.4%	9.8%
HFRI Fund of Funds	Hedge Funds	-2.4%	-1.0%	4.9%	-3.9%	2.4%	3.4%
HFRI FoF: Conservative	Hedge Funds	-1.5%	0.2%	5.1%	-3.8%	1.6%	3.1%
90 Day T-Bills + 2%	Hedge Funds	0.5%	1.0%	2.2%	3.6%	4.8%	4.7%
Cambridge PE Lagged	Private Equity	4.4%	10.5%	22.5%	1.2%	11.9%	7.5%
Cambridge VC Lagged	Venture Capital	0.7%	3.9%	6.6%	-0.5%	5.5%	-5.5%
CPI	Inflation	-0.4%	-0.1%	1.1%	1.5%	2.3%	2.3%



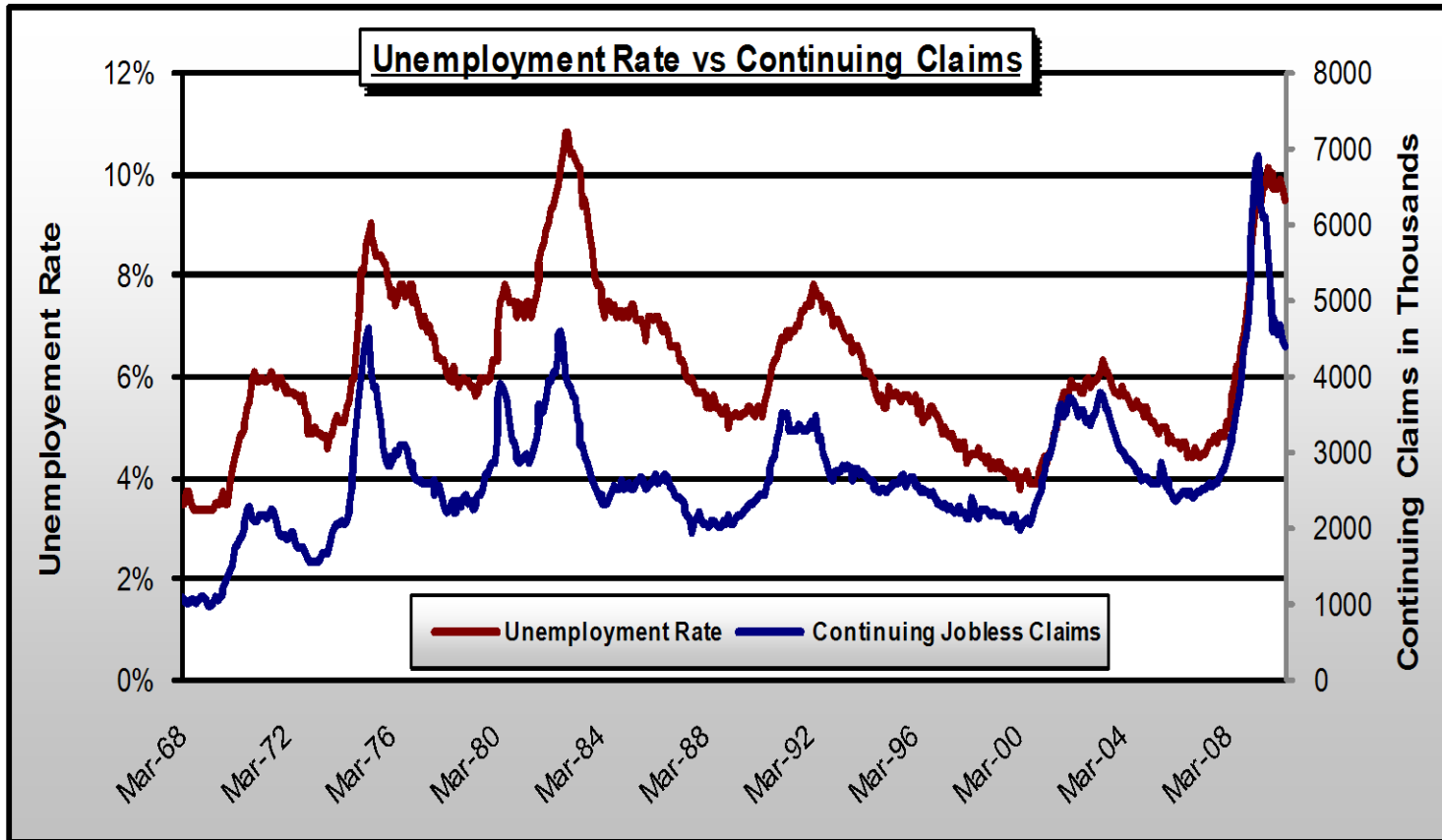
Note: Cambridge Private Equity and Venture Capital Indexes are lagged by one quarter. Performance shown as of March 31, 2010.

## Market Environment – U.S. Economy



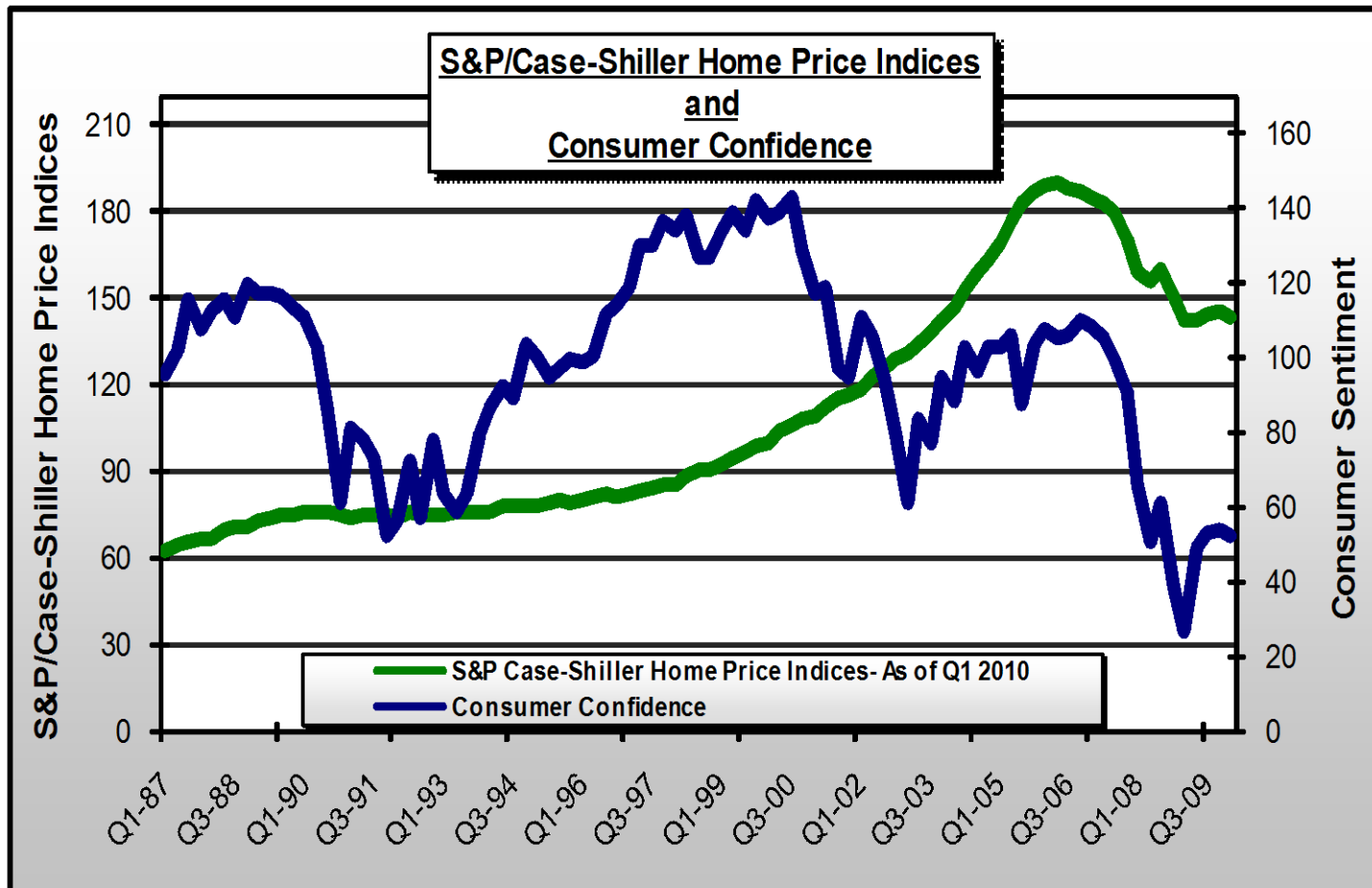
**GDP Growth for Q2 2010 was lower than expected at 2.4%.**

# Market Environment – U.S. Economy



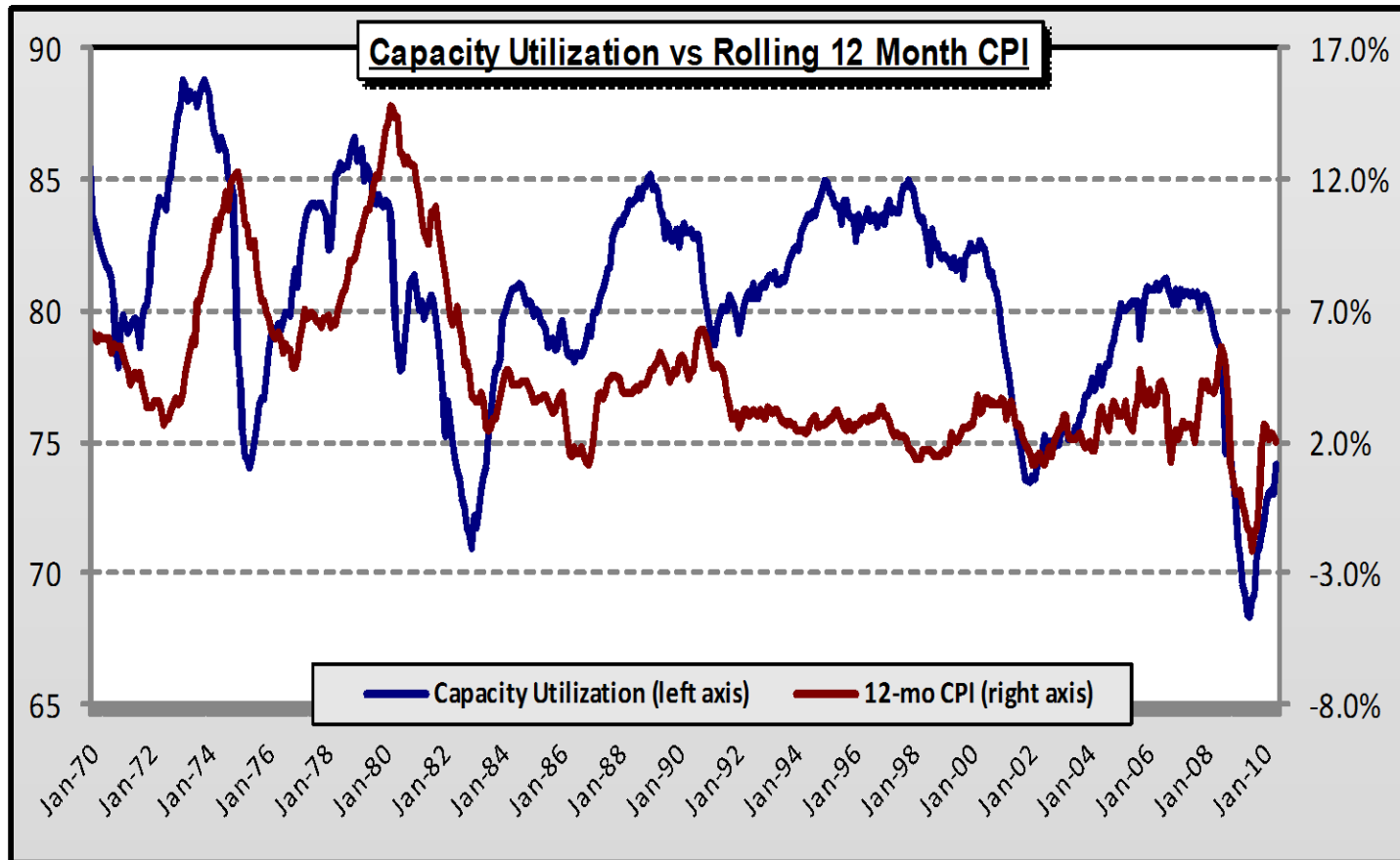
**The unemployment rate decreased to 9.5% in Q2 2010, and U.S. continuing jobless claims dropped last quarter, though these figures likely understate total unemployment.**

# Market Environment – U.S. Economy



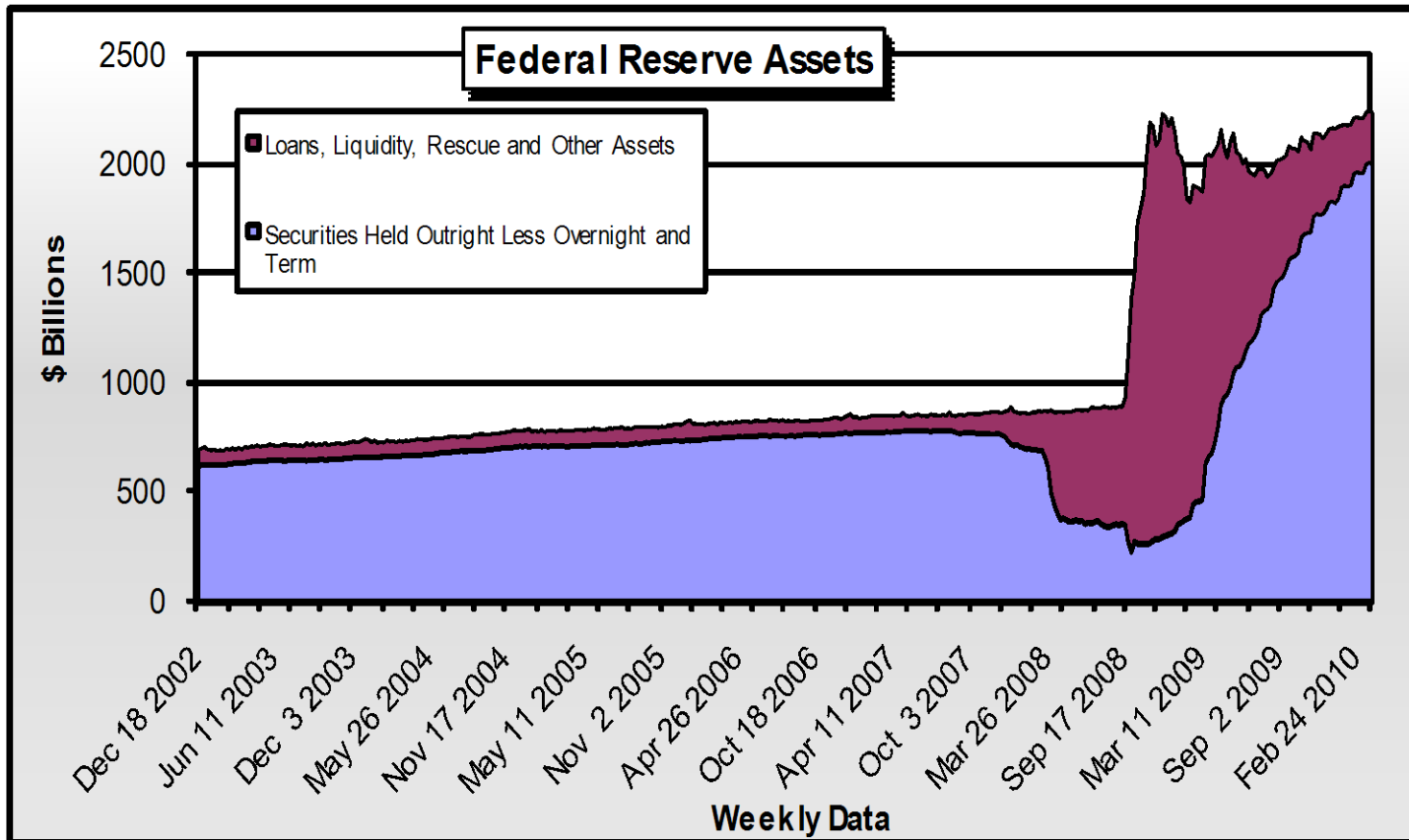
**Housing prices and consumer confidence have been flat so far in 2010.**

# Market Environment – U.S. Economy



**Capacity utilization has recovered sharply but still remains at depressed levels, while CPI has settled near 2%.**

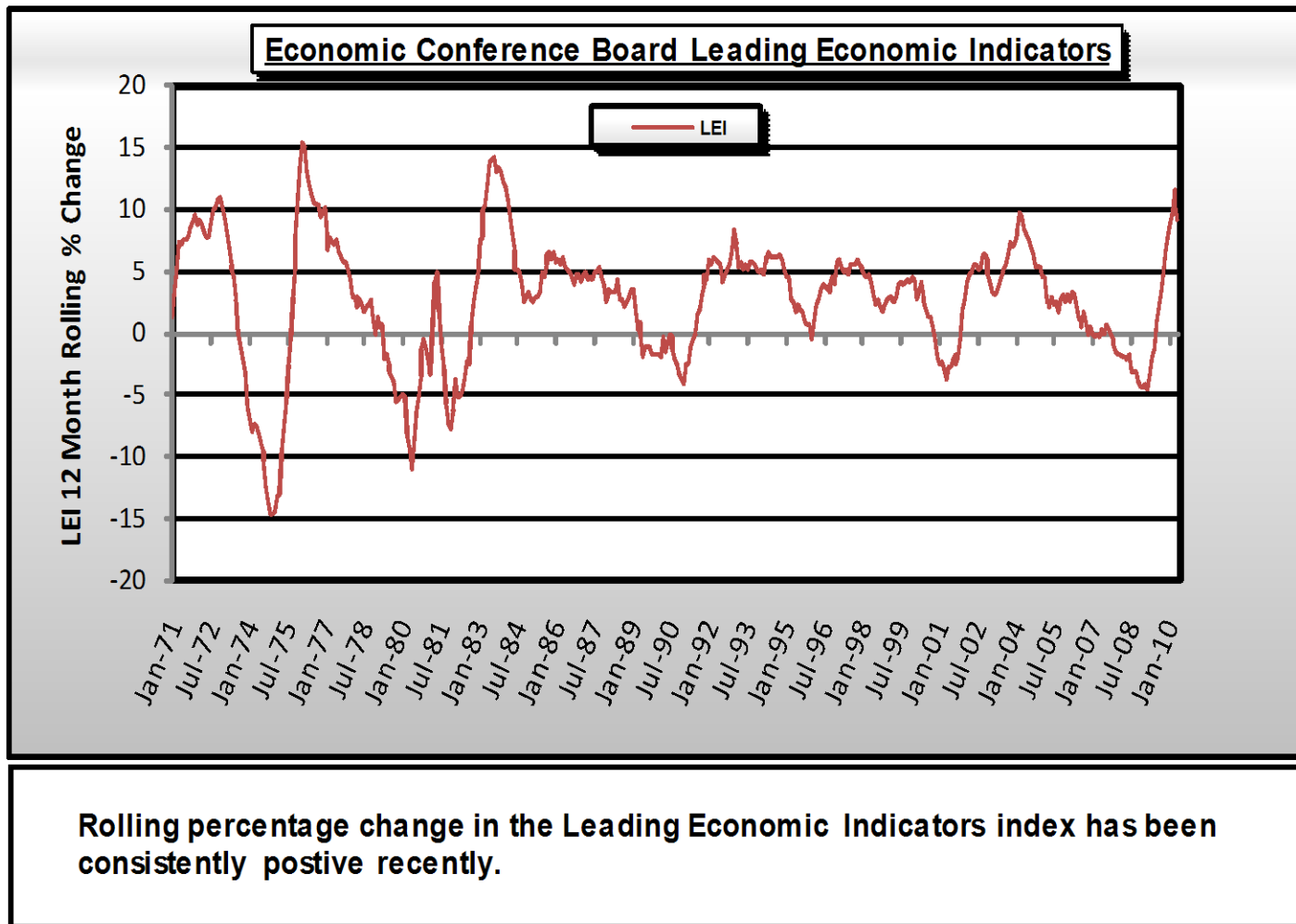
# Market Environment – U.S. Economy



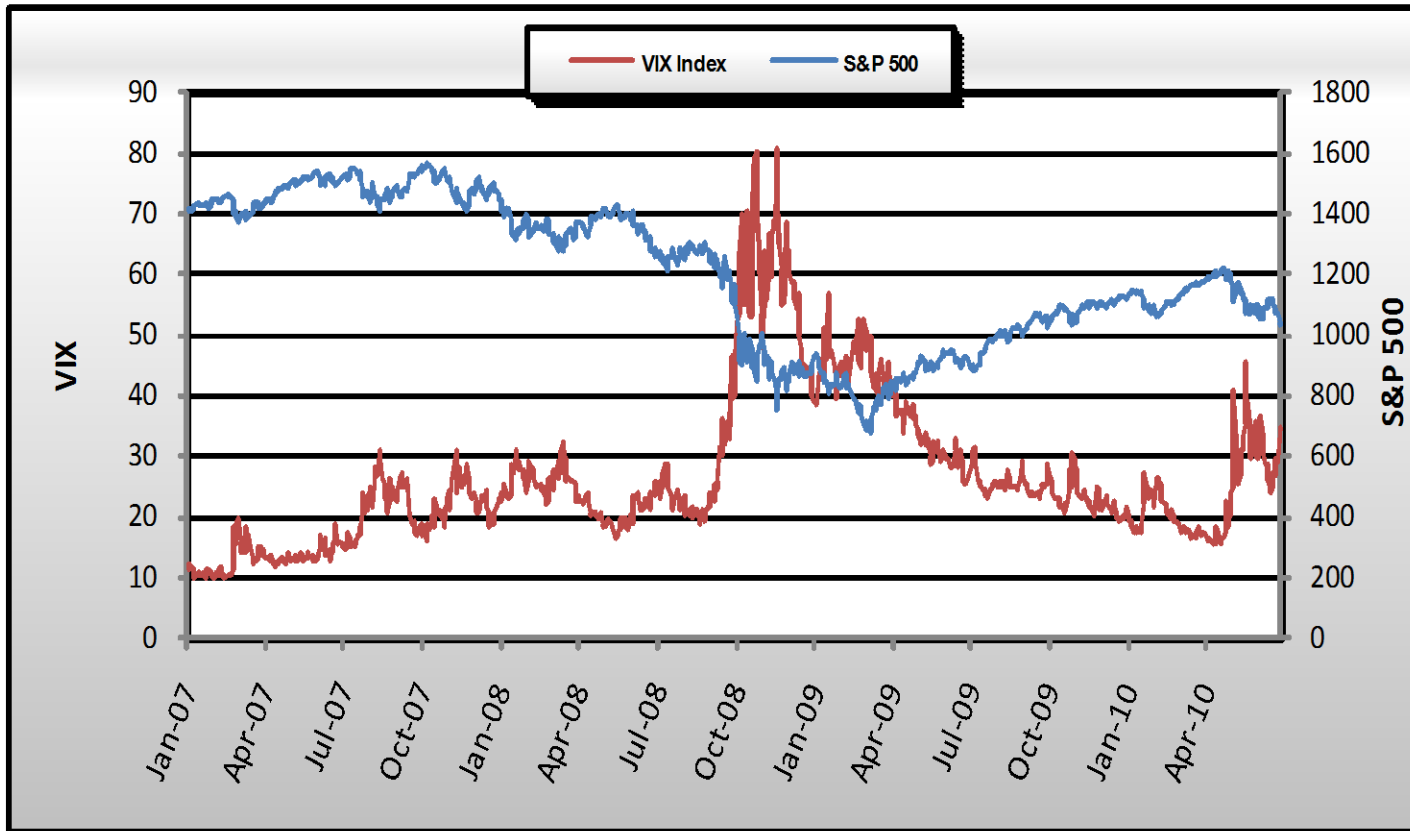
**The Fed Balance Sheet continues to grow; however composition of underlying securities is changing from stimulus and liquidity provisions to purchased securities...**



# Market Environment – U.S. Economy

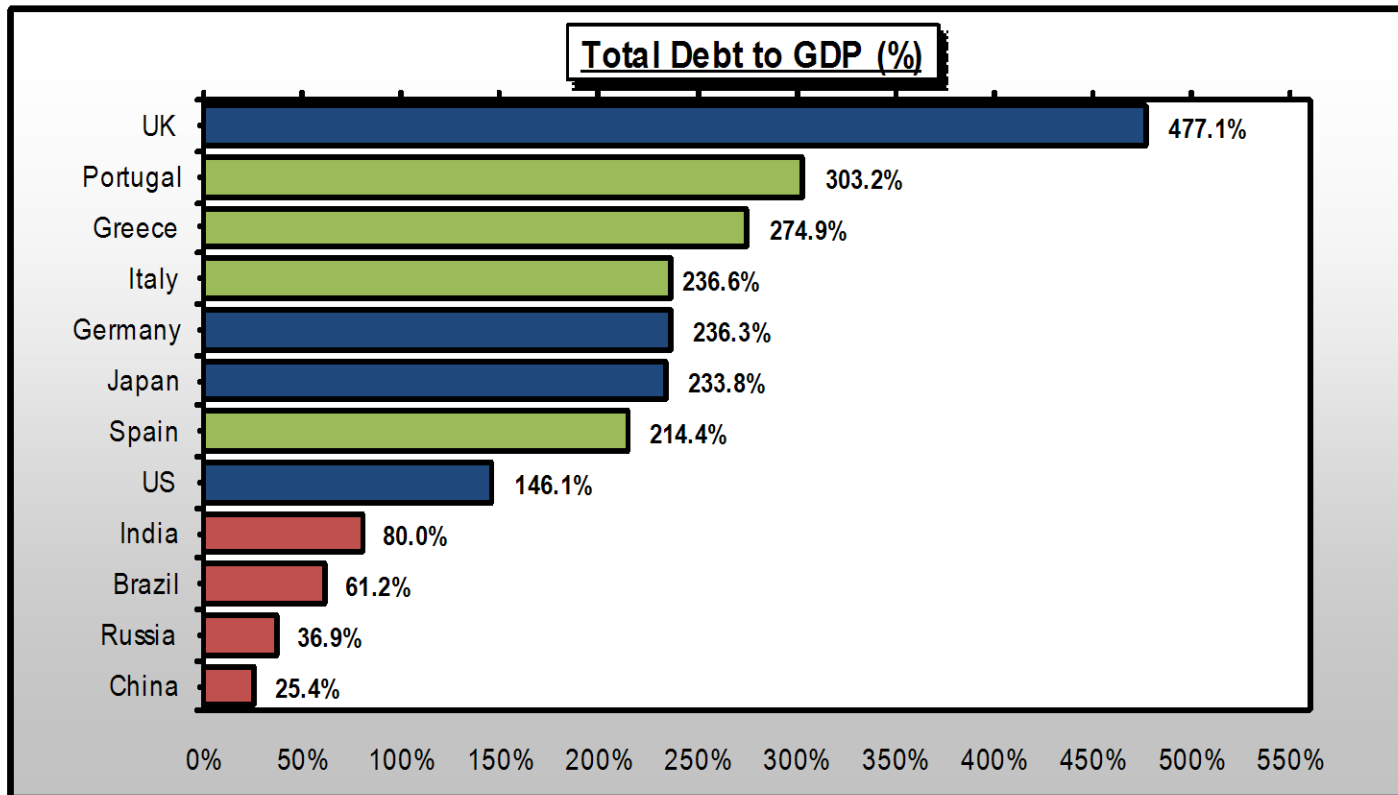


# Market Environment – U.S. Economy



**Spikes in the VIX have been accompanied by drawdowns in the S&P 500, including during Q2 when the VIX reached 45.**

# Market Environment – Global Economy



**Developed economies have significantly levered balance sheets, in particular peripheral Europe, while emerging countries have much healthier balance sheets.**

# Domestic & International Equities

- **No segment of the equity markets was safe during 2Q 2010, as all of the major global equity indexes declined between 9% and 15.5% for the period.**
  - The S&P 500 returned -11.4% for the second quarter, as volatility returned to the markets after a relatively quiet first quarter.
  - All sectors were negative during the quarter, with the more defensive sectors (Utilities, Telecommunications & Consumer Staples) performing better than those sectors tied to a cyclical economic recovery (Materials, Energy, Financials & Consumer Discretionary).
- **Both Large and Small Cap stocks are cheap, relative to historical Price/Forward Earnings averages.**
- **Earnings yields now significantly exceed 10-year bond yields following the rally in Treasuries in 2Q.**
- **Consensus estimates indicate S&P 500 EPS growth is expected to increase by 44% in 2010.**
- **S&P 500 price momentum shows a bearish signal as the 150 day moving average crossed the 50 day moving average at the end of June.**
- **Domestic Small Cap stocks have outperformed Large Cap stocks by 4.4% year to date.**
- **Domestic Large and Small Cap Value stocks have outperformed Growth stocks by 2.5% so far in 2010.**
- **Large Cap Domestic Equity has outperformed International Equity (MSCI ACWI ex-U.S.) by 3.4% year to date.**
  - The debt crisis in developed Europe, coupled with fears of a bubble in China, caused many investors to seek safety in the U.S., helping the U.S. dollar strengthen, but hurting the non-U.S. equity holdings of U.S. investors. The MSCI EAFE index was down 14% during the second quarter, with more than 2.5% of that underperformance caused by the negative performance of foreign currencies.
- **Investments in Emerging Markets continues to gain momentum due to higher expected real growth rates.**
  - Fundamentals in emerging countries are strengthening as the fundamentals within developed markets continue to deteriorate.

# Fixed Income

- **Investment grade fixed income delivered mostly positive returns in the second quarter as investors sought relief from risky assets into safer U.S. investments.**
  - Increased demand for risky assets pushed yields lower, testing levels observed during the credit crisis of 2008-2009.
- **The Yield Curve remains steep, with short term rates anchored near zero despite the significant drop in the 10- and 30-year Treasury yields during the second quarter.**
  - Bond markets are pricing in an assumption of very low economic growth for the foreseeable future as the 10-year Treasury yield fell to 3.0% during the quarter.
- **The Barclays Aggregate Bond Index returned 3.5% in the second quarter, led by Treasuries (+4.2%).**
  - Agency Mortgage Backed Securities returned 2.9% during the second quarter despite the government's suspension of the direct purchase program of mortgage backed securities in March.
- **Credit quality is once again showing signs of importance as investment grade credit was up 3.3% during the quarter, while BB credits posted slightly positive returns (0.4%), and CCC credits posted negative returns (-1.4%).**
- **High Yield markets were essentially flat for the quarter, but are up more than 25% for the year ending June 30, 2010.**
  - While fundamentals in corporate and consumer credit sectors continue to improve amidst ongoing deleveraging, a weak economic outlook has created uncertainty, particularly regarding borrowers' ability to refinance debt in the future.
- **Many developed countries continue to struggle with high government debt and fiscal deficits.**
  - Greece was downgraded to below investment grade during the quarter, and other countries such as Spain also faced the possibility of a downgrade.
  - Many developing countries, however, are benefiting from healthy balance sheets and economic growth, and as a result, we continue to research the emerging local currency market as an attractive opportunity for client portfolios.

# Private Markets

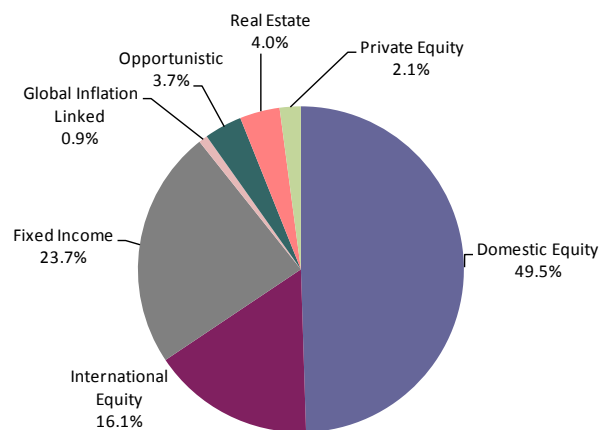
- **Both private equity and real estate investment managers have extended the maturities of their debt under the expectation that the loans will mature in a better economic environment.**
- **The amount of non-investment grade debt currently outstanding is expected to lead to significant defaults.**
  - Approximately 1/3 of high yield issuance in 2007 was CCC-rated.
  - Historically, 40% of CCC-rated bond issuance defaults within five years of issuance.
- **The \$2.9 billion in leveraged loan and revolving credit facilities issued during 2Q 2010 is the largest amount of quarterly issuance since the \$4.6 billion issued during 3Q 2008.**
- **Community and regional banks are under pressure from bankruptcies and real estate loans.**
  - Through July 10, 2010, 96 banks with \$74.8 billion in assets have failed. At this pace, failures should exceed the total amount of bank failures experienced in the fifteen year period from 1993-2008 (148 bank failures with \$395.7 billion in assets).
- **\$1.443 trillion of commercial real estate loans are coming due between 2010 and 2014, and more than 60% of those loans are currently underwater.**
- **Property fundamentals appear to be reaching a bottom, however, job and economic growth are critical for significant improvement.**
- **Given the macroeconomic issues globally, the amount of debt coming due and the projected impact of the financial reform bill, we continue to emphasize opportunities in distressed, mezzanine and secondary strategies.**

# ASRS Total Fund Review

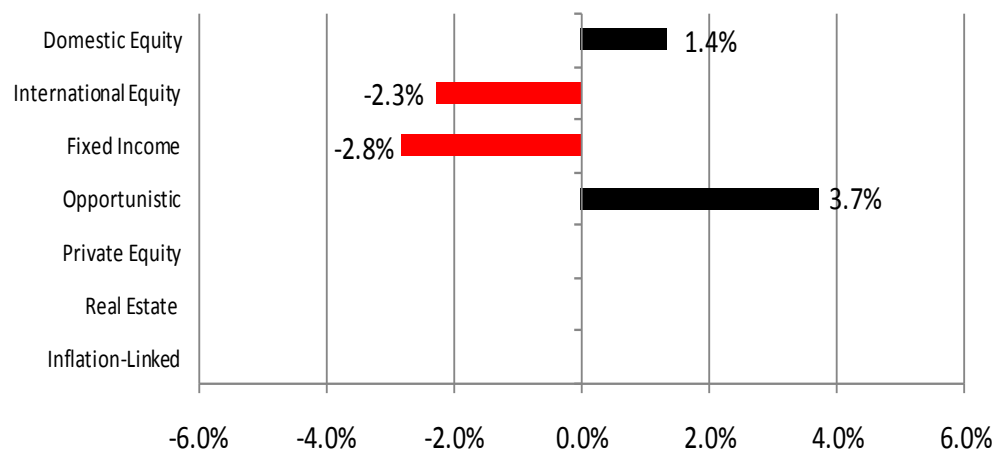
**Note: All of the data in this report is as of June 30, 2010, unless otherwise noted.**

# Total Fund Asset Allocation

## Actual Asset Allocation



## Actual Asset Allocation vs. Policy Adjusted for Transition into Real Estate, Private Equity and Inflation-Linked Assets\*




\*Real Estate, Private Equity and Inflation-Linked Assets actual weights are equal to policy weights during the implementation of these asset classes.

\*Over/Under- weights include both GTAA positions as well as IMD tactical considerations.

Note: Real Estate and Private Equity market values are reported on a quarter-lag and adjusted to include the current quarter's cash flows. Within the Policy Adjusted for Transition chart, Real Estate was prorated to domestic equity, international equity and fixed income, while Private Equity and Inflation-Linked Assets were prorated to domestic equity.



# Investment Program Investment Goals

- Macro
- 
- Goal #1: Achieve a total fund rate of return equal to or greater than the actuarial assumed interest rate.
  - Goal #2: Achieve a total fund rate of return equal to or greater than the asset allocation benchmark.
  - Goal #3: Achieve a total fund rate of return equal to or greater than the amount projected in the most recent asset allocation study.
  - Goal #4: Achieve asset class net rates of return equal to or greater than their respective broad asset class benchmarks.
  - Goal #5: Achieve portfolio-level net rates of return equal to or greater than their respective portfolio benchmarks.
  - Goal #6: Ensure sufficient monies are available to meet cash flow requirements.
- Micro

## Total Fund Performance

- Goal #1: Achieve a total fund rate of return equal to or greater than the actuarial assumed interest rate.

	10 Year Annualized Return
Total Fund	2.3%
Constant 8%	8.0%
Excess Return	-5.7%

Goal Met: **No**

# Total Fund Performance

- Goal #2: Achieve annual and three-year rolling annual rates of return equal to or greater than the return of the Asset Allocation Benchmark (SAA Benchmark)

	Quarter	6 Months	1 Year	3 Years	5 Years	10 Years	Since Inception (6/30/75)
<b>Total Fund</b>	-6.4%	-2.5%	14.9%	-4.7%	2.3%	2.3%	9.6%
<b>SAA Benchmark<sup>1</sup></b>	-6.8%	-3.1%	13.2%	-4.5%	2.4%	1.8%	9.4%
<b>Excess Return</b>	0.4%	0.6%	1.7%	-0.2%	-0.1%	0.5%	0.2%

**1 Year Goal Met: Yes**  
**3 Year Goal Met: No**

<sup>1</sup>SAA Benchmark history can be found on the last page of this presentation.

## Total Fund Performance

- Goal #3: Achieve a five-year rolling annual rate of return equal to or greater than the projected return expectation in the ASRS Asset Allocation Study.

	<u>5 Year Annualized Return</u>
Total Fund	2.3%
AA Expected Return	<u>8.0%</u>
Excess Return	<b>-5.7%</b>

Goal Met: **No**

# Asset Class Performance vs. Benchmark

- Goal #4: Achieve annual and three-year rolling annual investment asset class net rates of return equal to or greater than their respective broad asset class

	1 Year Return	3 Year Return
ASRS Domestic Equity	17.8%	-8.3%
Domestic Benchmark <sup>1</sup>	17.0%	-9.0%
Excess Return	0.8%	0.7%
ASRS Int'l Equity	10.5%	-11.0%
MSCI ACWI ex U.S.	10.9%	-10.3%
Excess Return	-0.4%	-0.7%
ASRS Fixed Income	11.0%	7.9%
BC Aggregate	9.5%	7.5%
Excess Return	1.5%	0.4%
ASRS GTAA	17.9%	-2.1%
Custom Benchmark <sup>2</sup>	12.1%	-5.3%
Excess Return	5.8%	3.2%
ASRS Real Estate	1.2%	-16.1%
NPI + 1%	-8.7%	-3.4%
Excess Return	9.9%	-12.7%
ASRS Private Equity	17.7%	n/a
Russell 3000 + 300 bps	56.9%	-6.4%
Excess Return	-39.2%	n/a
ASRS Opportunistic <sup>3</sup>	39.0%	n/a

**Goal Met: Partially**

<sup>1</sup>Domestic Equity Benchmark was S&P 500 through 12/31/2006 and 74% S&P 500, 13% S&P 400, 13% S&P 600 thereafter.

<sup>2</sup>GTAA Custom Benchmark is 56% S&P 500, 16% MSCI EAFE, 28% Barclays Capital Aggregate.

<sup>3</sup>Net absolute rate of return expectations range from 10-14% per annum.

## Manager Performance vs. Benchmarks

- Goal #5: Achieve annual and three-year rolling annual portfolio level net rates of return equal to or greater than their respective policy benchmarks.

	1 Year	3 Years
Outperformers #	40	19
Underperformers #	54	14
Outperformers%	42.6%	57.6%

**1 Year Goal Met: No**  
**3 Year Goal Met: Yes**

Note: Includes both public and private markets investment managers.

# Cash Management

- Goal #6: Ensure all pension benefits, health insurance, member refunds, administrative payments and other requirements are made from available cash balances and without utilizing alternative liquidity options.

Month	Master Cash Balance pre-run	Net Pension Run	Master Cash Balance post-run
Aug-09	\$177,951,392	(\$148,319,471)	\$36,023,992
Sep-09	\$181,782,602	(\$148,999,811)	\$32,571,030
Oct-09	\$163,499,186	(\$149,551,320)	\$20,547,400
Nov-09	\$164,395,519	(\$150,385,154)	\$23,388,095
Dec-09	\$192,641,724	(\$149,726,736)	\$53,256,380
Jan-10	\$191,061,998	(\$150,004,874)	\$47,206,171
Feb-10	\$161,224,140	(\$151,074,678)	\$21,569,784
Mar-10	\$176,986,852	(\$151,897,969)	\$26,540,315
Apr-10	\$220,056,521	(\$152,698,575)	\$101,148,397
May-10	\$240,698,047	(\$152,380,236)	\$96,924,980
Jun-10	\$178,753,811	(\$152,930,630)	\$26,483,778
Jul-10	\$93,815,370	(\$156,329,556)	\$29,421,495

**All Pension Obligations, Capital Calls and Other  
Requirements Met with Available Cash**

**Goal Met: Yes**

# Total Fund Performance Comparison\*

<b>Independent Consultant's Cooperative</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>10 Years</b>
Master Trust Funds - Total Funds	25	72	63	82
Total Funds - Public Funds	19	68	60	85
Total Funds over \$1 B - Public	22	51	61	83
Total Funds - Corporate	34	76	68	76

<b>Callan Associates Inc.</b>	<b>1 Year</b>	<b>3 Years</b>	<b>5 Years</b>	<b>10 Years</b>
Master Trust Funds - Total Funds	16	60	59	77
Total Funds - Public Funds	7	56	57	83
Total Funds over \$1 B - Public	8	50	61	85
Total Funds - Corporate	24	66	63	72

\*The information contained herein is for comparison purposes only and is not a Total Fund performance benchmark. Peer universe comparisons are subject to several limitations, including: peer groups are not comprehensive, several funds are included in multiple peer groups, peer groups are constructed using gross of fees returns and survivorship bias in that poorly performing funds may no longer continue to report results.

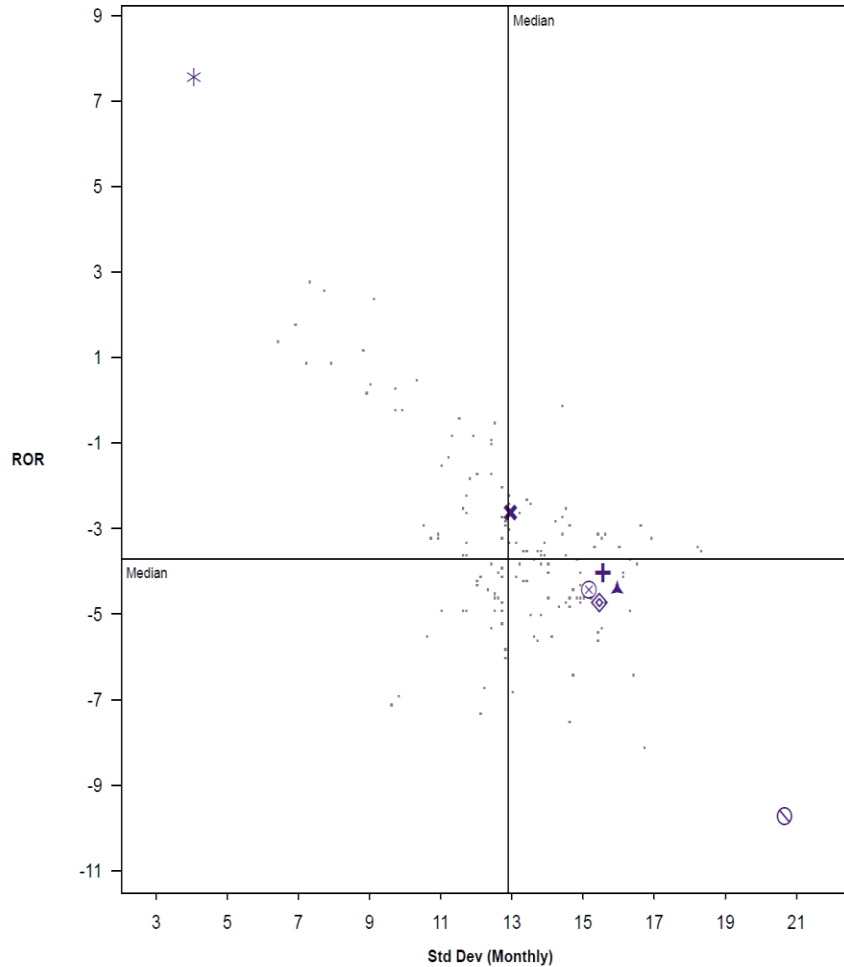
Note: Universes are constructed using gross of fee returns; therefore, the ASRS rank is based on gross of fee returns.





# 3 Yr. Return/Volatility vs. Public Funds

Risk vs. Return - 3 Year



NAME	Return	Standard Deviation	Sharpe Ratio
⊗ TOTAL FUND	-4.5 68	15.2 84	-0.4 62
⊠ ACTUAL BENCHMARK	-4.8 80	15.5 89	-0.4 65
▲ INTERIM TOTAL FUND BENCHMARK	-4.5 68	16.0 92	-0.4 57
⊕ TOTAL FUND BENCHMARK	-4.1 62	15.6 90	-0.4 52
⊖ S&P 500	-9.8	20.7	-0.5
* BC AGGREGATE	7.5	4.1	1.5
✕ 60% S&P 500/40% BARCLAYS AGG	-2.7	13.0	-0.3
Median	-3.7	12.9	-0.4

\*Interim Benchmark (current): 35% S&P 500, 7% S&P 400, 7% S&P 600, 19% MSCI ACWI ex-U.S., 27% Barclays Capital Aggregate, 4% NCREIF Property Index + 100 bps (lagged one quarter), and 1% Russell 3000 + 300 bps.

Note: Interim Benchmark incorporates a proration of 2% Real Estate and 6% Private Equity

Returns are Gross of Fees.

# **Investment Outlook**

## Second Quarter 2010 NEPC Observations and Opportunities

- **Caution and uncertainty returned to markets as macroeconomic issues increased volatility and drove risky asset prices downward**
  - VIX peaked at 45, but has since retreated to the mid-20s
- **Emerging markets are attractive as structural debt issues stifle developed world growth**
  - Especially apparent in currency returns – over 6% of EAFE returns due to foreign currency depreciation (Euro & Sterling)
  - Emerging currencies are attractive and poised for long term appreciation relative to US dollar and other developed currencies
- **Illiquid credit opportunities remain attractive even as liquid credit markets were much more resilient in the 2<sup>nd</sup> quarter**
  - Liquid credit market spreads increased only modestly and were less correlated to equity market losses
  - Distressed debt and real estate is still attractive as a longer term opportunity given structural issues
- **Financial reform has had limited direct market impact in the near term, but will have long term ramifications as fine print is developed**
  - Government actions could cause macro trends to continue to drive markets

# What Happened and What IMD Did During Q2 2010

## What Happened

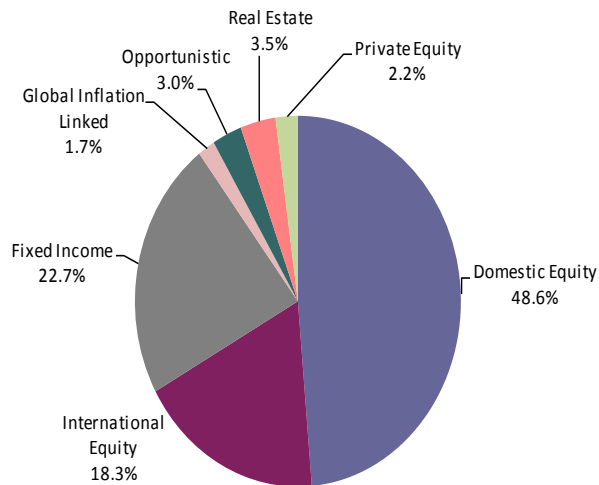
- Asset classes displayed mixed results throughout Q2
  - Fixed income spread markets widened due to sovereign concerns
  - Equities (U.S. and International) posted negative returns
  - U.S. Equities outperformed International
- Dollar displayed early strength but began to weaken at quarter close
- Actual Q2 S&P corporate earnings exceeded estimates
- Unemployment continues to hold near 10%

## IMD Activities

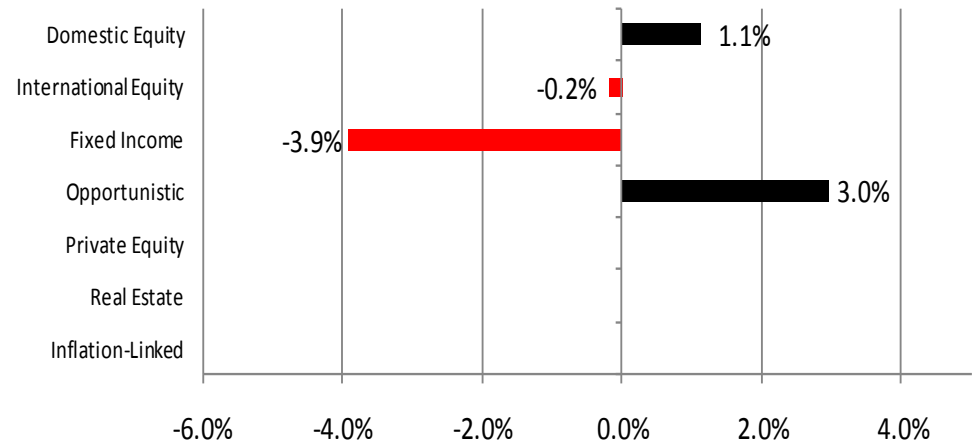
- Additions
  - Selected 2 managers to fill half of the Commodities mandate
  - Hired and funded 1 Opportunistic manager
- Terminations
  - 1 Core Fixed Income manager
  - 1 International Small Cap manager
- Reduced active management in the international equity markets

# Where Are We Now? (as of September 29, 2010)

**Actual Asset Allocation**



**Actual Asset Allocation vs. Policy Adjusted for Transition into Real Estate, Private Equity and Inflation-Linked Assets\***



\*Real Estate, Private Equity and Inflation-Linked Assets actual weights are equal to policy weights during the implementation of these asset classes.

\*Over/Under- weights include both GTAA positions as well as IMD tactical considerations.

# IMD Investment House Views

- **Fixed Income**

- The landscape of the fixed income markets has changed considerably since May as sovereign debt concerns have abated, the U.S. recovery has faltered, and the Federal Reserve has made it clear that it will likely keep short-term rates from rising indefinitely.
- A slow recovery combined with very low rates is favorable for the credit markets that offer yield. However, the outlook for credit could quickly change if sovereign debt issues reemerge or the economy slips back into a recession.
- While IMD remains positive on credit, particularly high yield and select areas of structured credit, IMD modestly increased ASRS's passive holdings in U.S. Treasuries and Agency MBS and reduced exposure in select spread products over the past few months in response to the economic uncertainty. This included selectively defunding a separate account opportunistic investment manager focused on non-Agency RMBS and CMBS.

- **US Equities**

- Anxiety replaced a more sanguine outlook, but the tepid commitment being made to U.S. equities continues to illustrate a noticeable skepticism of them and of the broader domestic economy.
- IMD feels U.S. equities could grind higher based on mostly improving fundamentals, but the easiest move has likely taken place.
- IMD began reducing the moderate tactical bias it has to U.S. equities relative to non-U.S. equities and to the overall Fund.

- **International Equities**

- Aggregate global economic growth is above trend and set to remain there well into 2012. Slack from the recession is sufficiently widespread to counter a marked rise in inflation, and commodity prices have not increased explosively.
- Most global markets in 2010 have trailed those in the U.S., resulting in valuations that are reasonable. Europe remains least extended, but is constrained by the burden of some languishing regional economies. Asian economies continue to outpace Western economies.
- IMD continues to favor an active strategic allocation to emerging markets equities and less active exposure to developed non-U.S. equities.

# IMD Investment House Views

- **Private Equity**

- Private equity continues to favor managers with proven investment processes and top quartile returns who manage funds that target companies with enterprise values in middle, small and micro markets.
- These segments of the market appear to represent the largest opportunity set for portfolio company acquisitions, which historically have been underserved, employed lower levels of leverage and achieved lower purchase price multiples.
- IMD will continue focusing on opportunities within secondaries, energy, clean tech, focused infrastructure opportunities and in distressed-for-control, turnaround mezzanine and buyout funds.

- **Real Estate**

- Real estate valuations continue to be impacted by multiple cross-currents: modest economic recovery and monies seeking investments are a positive, however, transaction volumes, though increasing due to transaction size, and property pricing remain unclear and rent/occupancy levels continue to weaken or at best remain flat.
- Real estate values, at least quality assets in prime markets, show some strength, while less quality assets in non-prime markets are still showing weakness.
- Real estate opportunities in U.S. core equity/debt strategies will be evaluated for possible investment, though new commitments over the next couple of quarters will likely be relatively moderate.

- **Opportunistic**

- IMD believes opportunities continue to exist in select fixed income markets with such tactical investments made primarily through ASRS opportunistic fixed income investment managers.
- IMD has reduced some exposure in CMBS and RMBS through the defunding of a manager following a rapid recent price appreciation in these sectors.

# Appendix



# Total Fund Benchmark History

- **Policy History:**

- 7/1/75 – 12/31/79 – 40% S&P 500/60% Barclays Capital Aggregate
- 1/1/80 – 12/31/83 – 50% S&P 500/50% Barclays Capital Aggregate
- 1/1/84 – 12/31/91 – 60% S&P 500/40% Barclays Capital Aggregate
- 1/1/92 – 12/31/94 – 50% S&P 500/40% Barclays Capital Aggregate/10% MSCI EAFE
- 1/1/95 – 6/30/97 – 45% S&P 500/40% Barclays Capital Aggregate/15% MSCI EAFE
- 7/1/97 – 12/31/99 – 50% S&P 500/35% Barclays Capital Aggregate/15% MSCI EAFE
- 1/1/00 – 9/30/03 – 53% S&P 500/30% Barclays Capital Aggregate/17% MSCI EAFE
- 10/1/03 – 12/31/06 – 53% S&P 500/26% Barclays Capital Aggregate/15% MSCI EAFE/ACWI ex-U.S.<sup>1</sup>/6% NCREIF Property Index + 100 bps (lagged one quarter)
- 1/1/07 – 10/31/2009 – 31% S&P 500/7% S&P 400/7% S&P 600/26% Barclays Capital Aggregate/18% MSCI ACWI ex-U.S./6% NCREIF Property Index + 100 bps (lagged one quarter)/5% Russell 3000 + 300 bps
- 11/1/2009 – present – 28% S&P 500/6% S&P 400/6% S&P 600/24% Barclays Capital Aggregate/2% Barclays Capital High Yield/13% MSCI EAFE/2% MSCI EAFE Small Cap/3% MSCI Emerging Markets/6% NCREIF Property Index + 100 bps (lagged one quarter)/7% Russell 3000 + 300 bps/3% Commodities<sup>2</sup>
- \*Interim Benchmark: 35% S&P 500, 7% S&P 400, 7% S&P 600, 19% MSCI ACWI ex-U.S., 27% Barclays Capital Aggregate, 4% NCREIF Property Index + 100 bps (lagged one quarter), and 1% Russell 3000 + 300 bps
- Note: Interim Benchmark includes a proration of 2% Real Estate, 6% Private Equity, and 3% Inflation-Linked, which are unfunded. 9% of the proration is allocated to domestic equity, 1% to non-U.S. equity and 1% to fixed income.

<sup>1</sup>MSCI EAFE/ACWI ex-U.S. Benchmark is the MSCI EAFE Index prior to 10/1/2005 and the MSCI ACWI ex-U.S. thereafter

<sup>2</sup>The benchmark the ASRS will utilize for its allocation to Commodities is to be determined. The Dow Jones/UBS Commodities Index was used as a proxy in the interim.